

# Monthly Marine Biotoxin Report January 2004

Technical Report No. 04-12

## INTRODUCTION:

This report provides a summary of biotoxin activity for the month of January 2004. Ranges of toxin concentrations are provided for the paralytic shellfish poisoning (PSP) toxins and for domoic acid (DA). Estimates are also provided for the distribution and relative abundance of *Alexandrium*, the dinoflagellate that produces PSP toxins, and *Pseudo-nitzschia*, the diatom that produces domoic acid. Summary information is also provided for any quarantine or health advisory that was in effect during the reporting period.

Please note the following conventions for the phytoplankton and shellfish biotoxin distribution maps: (i) All estimates for phytoplankton relative abundance are qualitative, based on sampling effort and percent composition; (ii) All toxin data are for mussel samples, unless otherwise noted; (iii) All samples are assayed for PSP toxins; DA analyses are performed as needed (i.e., on the basis of detected blooms of the diatoms that produce DA); (iv) Please refer to the appropriate figure key for an explanation of the symbols used on the maps.

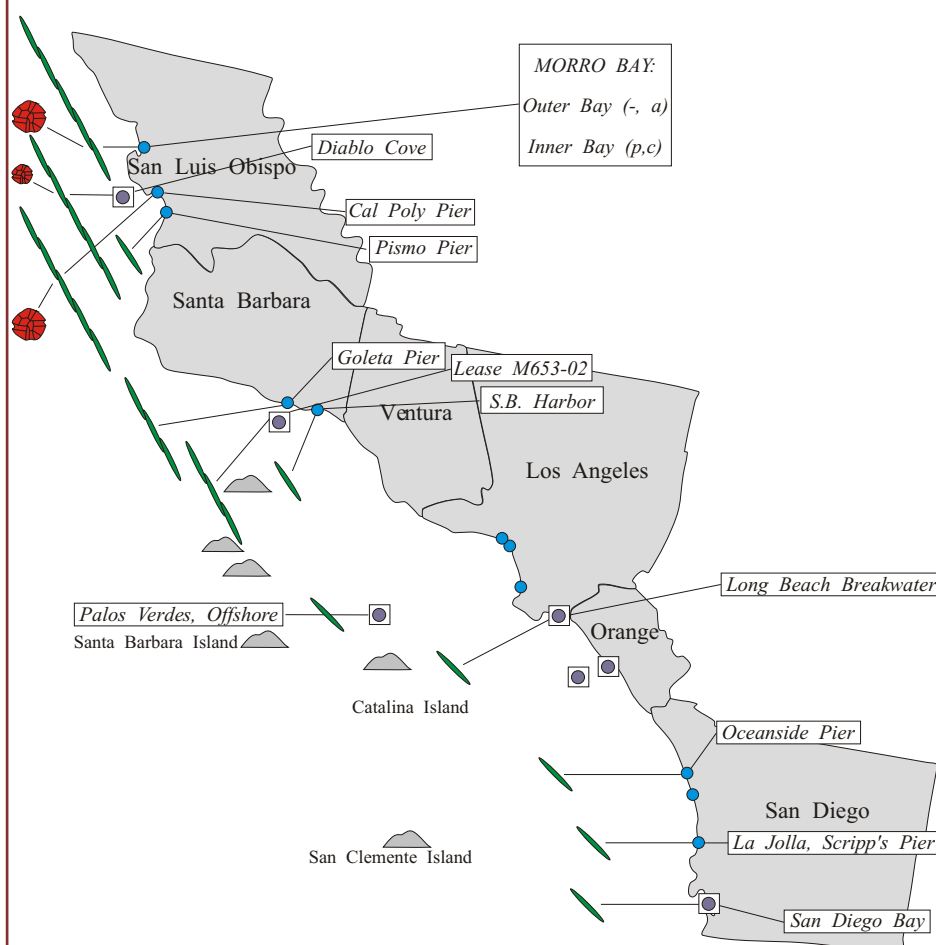
### Southern California Summary:

#### Paralytic Shellfish Poisoning

*Alexandrium* distribution and relative abundance remained similar in January 2004 compared to observations in December

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Figure 1. Distribution of toxin-producing phytoplankton in Southern California during January, 2004.



### Relative Abundance of Known Toxin Producers

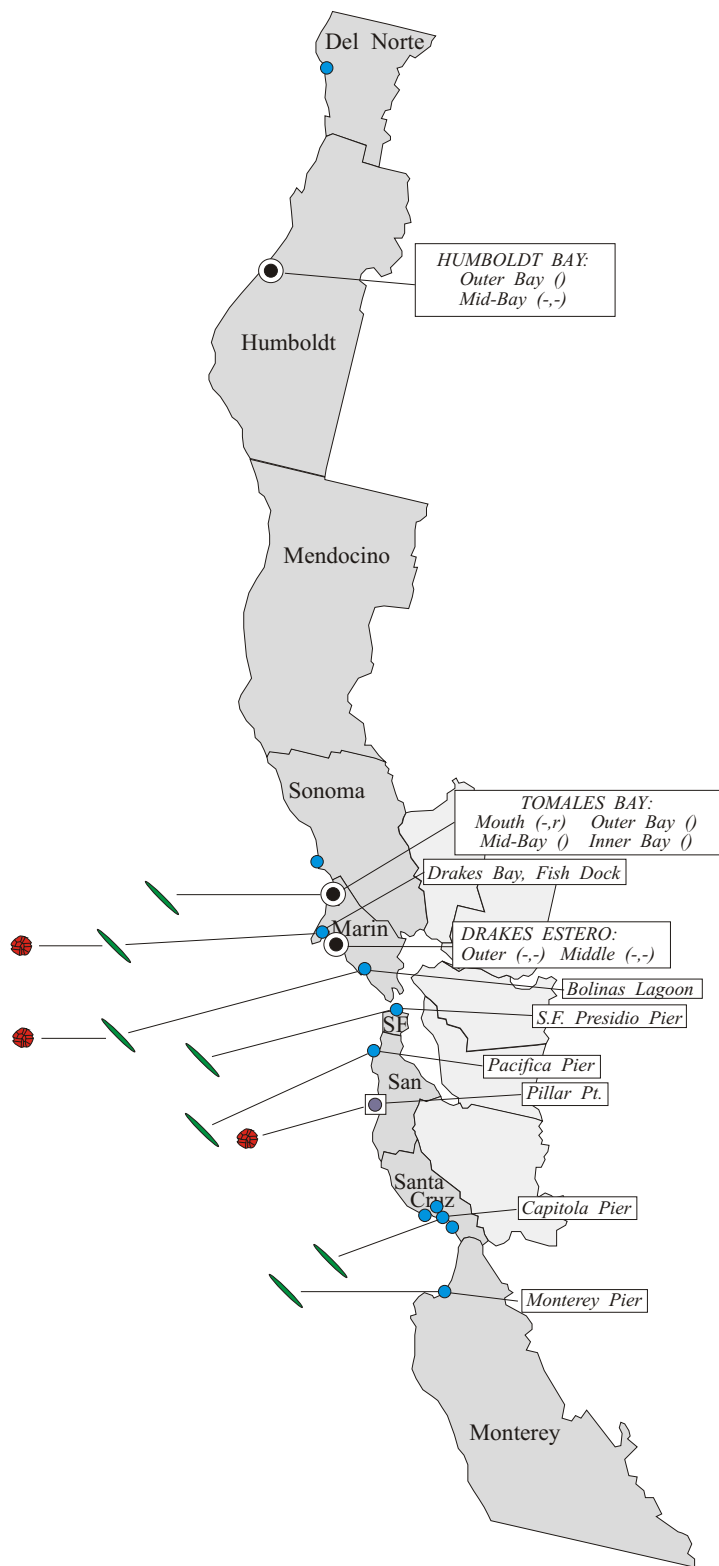
Alexandrium Species		Pseudo-nitzschia Species	
	Rare (less than 1%)		Present (less than 10%)
	Present (between 1% and 10%)		Common (between 10% and 50%)
	Common (between 10% and 50%)		Abundant (greater than 50%)
	Abundant (greater than 50%)		

#### MONTHLY SAMPLING STATIONS:

- Single Sampling Station
- Multiple Sampling Stations
- Offshore Sampling Station

For areas with multiple sampling stations, species abundance at each station is represented as follows:  
(a,p) = Abundance for *Alexandrium* and *Pseudo-nitzschia*.  
e.g., (c,p) = common, present; (a,-) = abundant, not observed

Figure 2. Distribution of toxin-producing phytoplankton in Northern California during January, 2004.



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(Figure 1). This dinoflagellate species was observed throughout the month at sites between Morro Bay and Avila in San Luis Obispo County, increasing at the former site from December's observations. Cell densities were low, with the highest relative abundance detected offshore of Diablo Cove.

Coinciding with these observations, low concentrations of PSP toxins were detected in mussels from Morro Bay during the first three weeks of January. Low levels of these toxins were also detected in mussels from the sentinel station at the Cal Poly Pier throughout the month, with the exception of the second week.

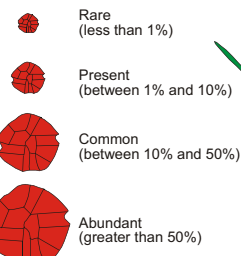
#### **Domoic Acid**

*Pseudo-nitzschia* was observed along the entire Southern California coast during January. The relative abundance of *Pseudo-nitzschia* increased along the San Luis Obispo coast between Morro Bay and Avila compared to December's observations (Figure 1). The most dramatic increase in relative abundance and cell number was observed in a January 7 sample from offshore of Diablo Cove. Slight increases in abundance were also observed offshore of Santa Barbara and Los Angeles, although cell numbers were low in these regions.

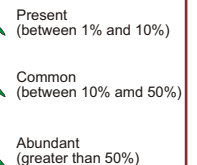
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#### **Relative Abundance of Known Toxin Producers**

##### Alexandrium Species



##### Pseudo-nitzschia Species



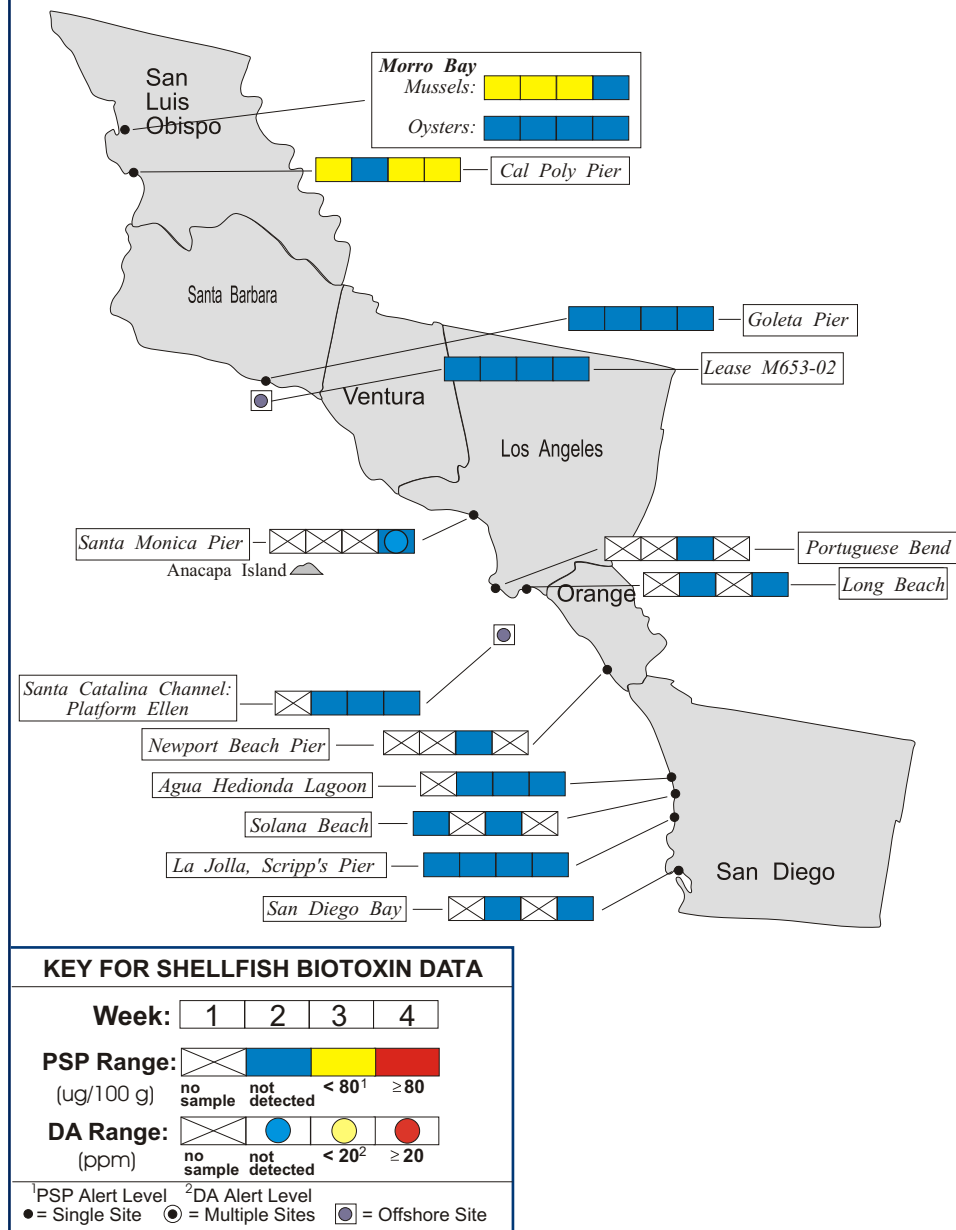
#### **MONTHLY SAMPLING STATIONS:**

- Single Sampling Station
- Multiple Sampling Stations
- Offshore Sampling Station

For areas with multiple sampling stations, species abundance at each station is represented as follows:

(A,P) = Abundance for *Alexandrium* and *Pseudo-nitzschia*.  
e.g., (c,p) = common, present; (a,-) = abundant, not observed

Figure 3. Distribution of shellfish biotoxins in Southern California during January, 2004.



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### Nontoxic Events

The dinoflagellate-dominated assemblage along the Southern California coast continued breaking down, with increased numbers of diatom species occurring at various locations. *Lingulodinium polyedrum* remained common to abundant from Santa Barbara through San Diego counties, with other dinoflagellates such as *Ceratium furca* and *Gymnodinium sanguineum* also commonly observed. The most common diatom species observed were *Chaetoceros*, *Bacteriastrum*, and *Skeletonema*.

### Northern California Summary:

#### Paralytic Shellfish Poisoning

*Alexandrium* was observed at sites in Marin and San Mateo counties in January (Figure 2). Low numbers of this dinoflagellate were observed at Drakes Bay and Bolinas Lagoon in Marin County and at Pillar Point in San Mateo County during the first two weeks of the month.

PSP toxins were detected in mussel samples from Marin and Santa Cruz counties in January (Figure 4). Low concentrations of these toxins were

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The Marine Biotoxin Monitoring and Control Program, managed by the California Department of Health Services, is a state-wide effort involving a consortium of volunteer participants. The shellfish sampling and analysis element of this program is intended to provide an early warning of shellfish toxicity by routinely assessing coastal resources for the presence of paralytic shellfish poisoning (PSP) toxins and domoic acid.

The Phytoplankton Monitoring Program is a state-wide program designed to detect toxin producing species of phytoplankton in ocean water before they impact the public. The phytoplankton monitoring and observation effort can provide an advanced warning of a potential toxic bloom, allowing us to focus sampling efforts in the affected area before California's valuable shellfish resources or the public health is threatened.

For More Information Please Call:  
(510) 412-4635

For Recorded Biotoxin Information Call:  
(800) 553-4133

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detected throughout most of the month in Drakes Estero (Marin County) and during the first three weeks of January at the Santa Cruz Pier. Toxin concentrations did not exceed 54 ug/100g of shellfish tissue.

### Domoic Acid

*Pseudo-nitzschia* was present at several locations along the Northern California coastline, from Marin through Monterey counties, during January (Figure 2). The relative abundance of this diatom was low at all locations.

### Nontoxic Events

Dinoflagellates were most common in Del Norte and Humboldt counties, with *Ceratium furca* and *C. fusus* the most common species observed. Diatoms dominated the remainder of the Northern California coast between Marin and San Mateo counties. The most common diatoms observed included *Biddulphia*, *Coscinodiscus*, *Chaetoceros*, *Skeletonema*, and *Ditylum*.



Figure 4. Distribution of shellfish biotoxins in Northern California during January, 2004.

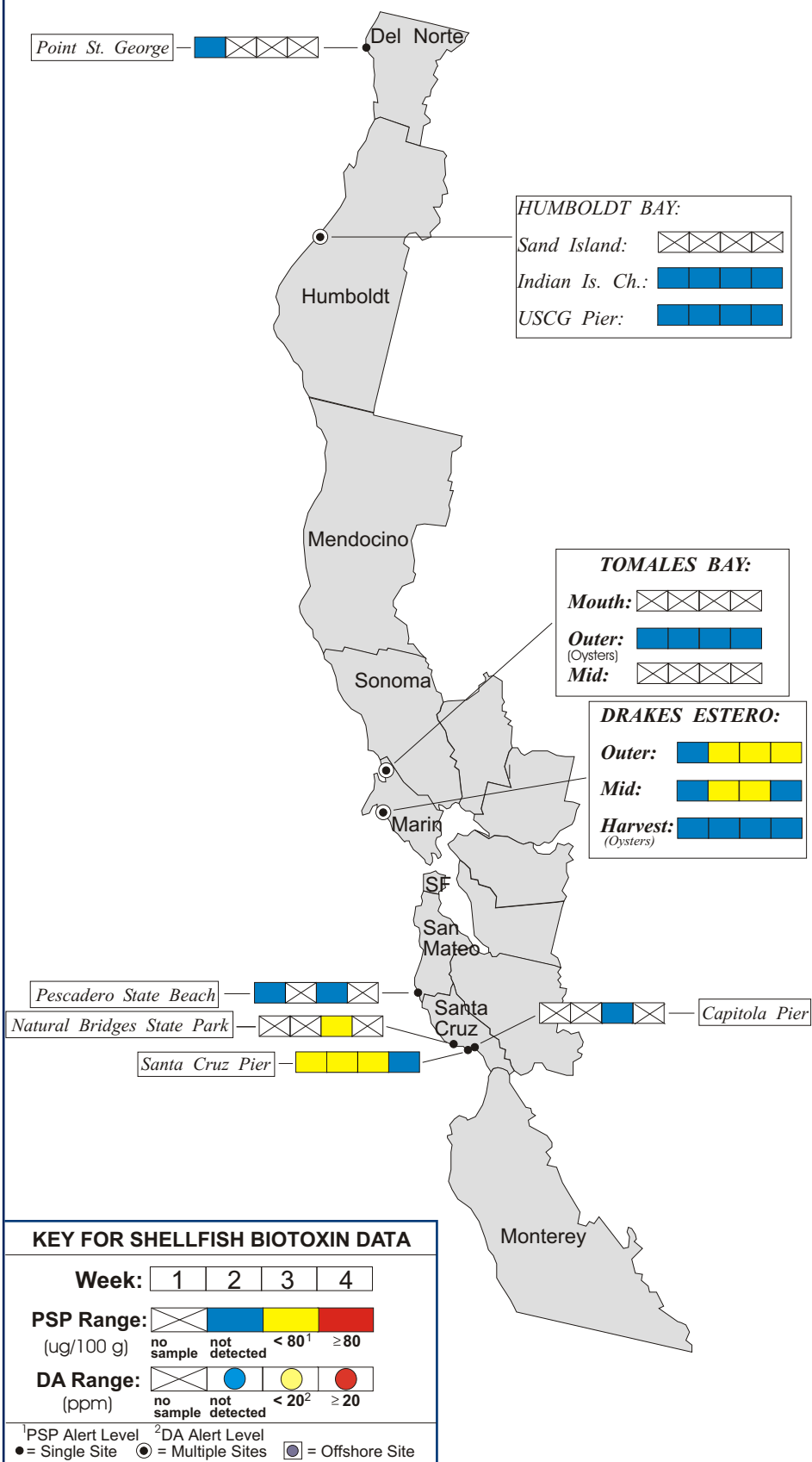


Table 1. California Marine Biotoxin Monitoring Program participants submitting shellfish samples during January, 2004.

COUNTY	AGENCY	# SAMPLES
Del Norte	Del Norte County Health Department	1
Humboldt	Coast Seafood Company	8
Mendocino	None Submitted	
Sonoma	None Submitted	
Marin	Hog Island Oyster Company	4
	Johnson Oyster Company	16
	Marin Oyster Company	3
	CDHS Marine Biotoxin Program	1
San Francisco	None Submitted	
San Mateo	San Mateo County Environmental Health Department	2
Santa Cruz	U.C. Santa Cruz	4
	Santa Cruz County Environmental Health Department	2
Monterey	None Submitted	
San Luis Obispo	Williams Shellfish Company	8
	U.C. Santa Barbara Marine Science Institute	4
Santa Barbara	Santa Barbara Mariculture Company	4
	U.C. Santa Barbara Marine Science Institute	4
Ventura	None Submitted	
Los Angeles	Los Angeles County Health Department	2
	Aquarium of the Pacific Long Beach	4
Orange	Ecomar, Inc.	3
	Orange County Health Care Agency	1
San Diego	Carlsbad Aquafarms, Inc.	3
	Scripps Institute for Oceanography	4
	U.S. Navy	2
	CDHS Marine Biotoxin Program Volunteer (Paul Sims)	2

### QUARANTINES:

There were no special quarantines or health advisories issued in January. The annual quarantine on the sport-harvesting of mussels normally goes into effect each year on May 1st and ends at midnight on October 31st. This annual quarantine applies only to sport-harvested mussels along the entire California coastline, including all bays and estuaries. This quarantine does not affect the commercial shellfish growing areas in California. All commercial shellfish growers certified by the State of California are required to submit routine samples for biotoxin analysis, allowing us to closely monitor for the occurrence of any toxin. Harvesting closures are imposed if toxin levels reach the federal alert level.

Consumers of Washington clams, also known as butter clams, are cautioned to eat only the white meat. Persons taking any clams or scallops are advised to remove and discard the dark parts (i.e., the digestive organs or viscera).

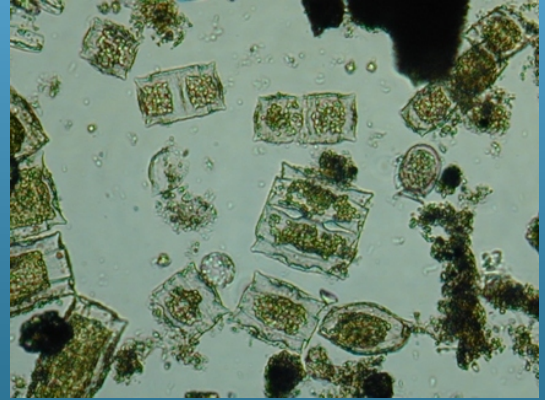
Contact the Department's "Shellfish Information Line" at 1-800-553-4133 or (510) 412-4643 for a current update on marine biotoxin activity.



Table 2. Agencies, organizations and volunteers participating in marine phytoplankton sample collection during January, 2004.

COUNTY	AGENCY	# SAMPLES
Del Norte	Del Norte County Health Department	2
Humboldt	Coast Seafood Company	4
Mendocino	None Submitted	
Sonoma	Bodega Marine Laboratory	1
Marin	CDHS Volunteers (Brent Anderson, Cal Strobel, Marjorie Siegel, Mary Von Tolksdorf)	8
	Johnson Oyster Company	8
Contra Costa	None Submitted	
San Francisco	CDHS Volunteer (Eugenia McNaughton)	4
San Mateo	San Mateo County Environmental Health Department	2
	CDHS Volunteer (Sandy Emerson)	2
Santa Cruz	Santa Cruz Environmental Health Department	3
	San Lorenzo Valley High School	2
Monterey	CDHS Volunteer (Jerry Norbn)	2
San Luis Obispo	CDHS Volunteers (Rene and Auburn Atkins)	1
	Morro Bay National Estuary Program	3
	Morro Bay Natural History Museum	4
	Tenera Environmental	3
	U.C. Santa Barbara Marine Science Institute	3
Santa Barbara	Williams Shellfish Company	1
	U.C. Santa Barbara Marine Science Institute	4
	Santa Barbara Mariculture Company	4
	Santa Barbara City College	1
Ventura	None Submitted	
Los Angeles	Aquarium of the Pacific Long Beach	2
	Los Angeles County Sanitation District	5
	Regional Water Quality Control Board	1
Orange	Orange County Sanitation District	4
San Diego	San Diego County Environmental Health Department	2
	CDHS Volunteer (Paul Sims)	8
	Scripps Institute for Oceanography	4

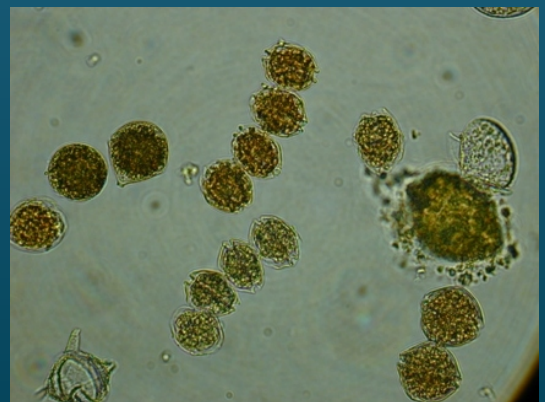
## PHYTOPLANKTON GALLERY



The diatom *Biddulphia* was common in Drakes Bay (Marin County) in January.



The domoic acid-producing diatom *Pseudo-nitzschia* increased in relative abundance along the San Luis Obispo County coast in January.



Chains of the PSP toxin-producing dinoflagellate *Alexandrium* were observed in samples from several sites in San Luis Obispo County.